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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.								
10/661,326	09/12/2003	David A. Cook	062891.1141	9358								
7590 BAKER BOTTS L.L.P. 6th Floor 2001 Ross Avenue Dallas, TX 75201-2980		12/19/2007	<table border="1"><tr><td colspan="2">EXAMINER</td></tr><tr><td colspan="2">O CONNOR, BRIAN T</td></tr><tr><td>ART UNIT</td><td>PAPER NUMBER</td></tr><tr><td>2619</td><td></td></tr></table>		EXAMINER		O CONNOR, BRIAN T		ART UNIT	PAPER NUMBER	2619	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/661,326

Applicant(s)

COOK ET AL.

Examiner

Brian T. O'Connor

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. This office action is in response to Applicant's amendment filed on 09/25/2007.
2. Claims 1-21 are currently pending.

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show an administrative element as part of an autonomous system (page 10, lines 26-30) as described in the specification and recited in claims 6 and 16. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claims 13 and 18 are objected to because of the following informalities. Claim 13 recites "the network element", however claims 12 and 13 do not introduce a network element. Claim 18 recites "the network element", however claims 17 and 18 do not introduce a network element. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-11, 13, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**With respect to claim 1**, the claim recites an apparatus with a network element however there is no corresponding subsystems or modules in the router to perform the functions and determinations recited in the claim. Thus, claim 1 is viewed as being incomplete for omitting essential elements. See MPEP § 2172.01. The omitted elements are: subsystems or modules to perform the recited functions of receiving an advertisement communications, identifying whether that is a claim to a connection, and constructing a directed graph. The claim also recites "an edge may be formed" leaving the claimed subject matter unclearly defined. The recited "edge" may or may not be formed in the step.

**With respect to claim 2**, the claim recites "the network element may verify" leaving the claimed subject matter unclearly defined. The recited "network element" may or may not perform the verify step.

**With respect to claim 7**, the claim recites "an edge may be formed" leaving the claimed subject matter unclearly defined. The recited "edge" may or may not be formed in the step.

**With respect to claims 8, 13, and 18**, each claim recites "the network element may verify" leaving the claimed subject matter unclearly defined. The recited "network element" may or may not perform the verify step.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as their scope is reciting undue breath in the form of a single means claim. See MPEP § 2164.08(a).

**With respect to claim 1**, the claim recites a network element that is operable to perform a series of functions. Any network element from the time of the invention to any time in the future could be made or operated to perform the recited functions.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, 7-10, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Gao ("On Inferring Autonomous System Relationships in the Internet", Dec. 2001, IEEE/ACM Transactions on Networking, Vol. 9, pg 733-745; hereafter Gao).

**With respect to claim 1**, Gao discloses an autonomous system (AS1, AS2 of Figure 1; viewed as equivalent to an apparatus) with a router (right column, pg 734, section 'A. Internet Architecture', lines 12-14) that will receive export notices of routing information from other ASes (pg 737, left column, lines 6-21; viewed as equivalent to an advertisement communication). Once an AS has received routing information, the AS will examine the information to build an annotated AS graph (Figure 2; pg 736, right column, section 'A. Annotated AS Graph and Selective Export Rule'; viewed as equivalent to a directed graph). In addition, the AS will evaluate the routing information to find or map AS paths (pg 735, left column, section 'B. Routing Policies and BGP Routing Tables'; viewed as equivalent to identifying a connection between a pair of ASes). Gao further discloses using the annotated AS graph to build two-way connections and edges between ASes (Table II, 'Total edges' column; pg 742; right column, first partial paragraph).

**With respect to claim 2**, Gao further discloses that updates are received at the ASes to consider to including or continuing to propagate (pg 735, right column, last full paragraph).

**With respect to claim 3**, Gao further discloses a router as part of the AS (right column, pg 734, section 'A. Internet Architecture', lines 12-14; router is viewed as a network element).

**With respect to claim 4**, Gao further discloses routing tables used to store path and routing information (pg 739, left column, section 'A. Algorithms for Inferring Provider-Customer and Sibling Relationships', first and second paragraphs; BGP routing tables of Figure 4).

**With respect to claim 5**, Gao further discloses the use of BGP to communicate updates and routing information (pg 733, right column, first partial paragraph) between the ASes.

**With respect to claim 7**, Gao discloses a method for an autonomous system (AS1, AS2 of Figure 1; viewed as equivalent to an apparatus) that will receive export notices of routing information from other ASes (pg 737, left column, lines 6-21; viewed as equivalent to an advertisement communication). Once an AS has received routing information, the AS will examine the information to build an annotated AS graph (Figure 2; pg 736, right column, section 'A. Annotated AS Graph and Selective Export Rule'; viewed as equivalent to a directed graph). In addition, the AS will evaluate the routing information to find or map AS paths (pg 735, left column, section 'B. Routing Policies and BGP Routing Tables'; viewed as equivalent to identifying a connection between a pair of ASes). Gao further discloses using the annotated AS graph to build two-way connections and edges between ASes (Table II, 'Total edges' column; pg 742; right column, first partial paragraph).

**With respect to claim 8**, Gao further discloses that updates are received at the ASes to consider to including or continuing to propagate (pg 735, right column, last full paragraph).

**With respect to claim 9**, Gao further discloses a router as part of the AS (right column, pg 734, section 'A. Internet Architecture', lines 12-14; router is viewed as a network element). Gao further discloses routing tables used to store path and routing information (pg 739, left column, section 'A. Algorithms for Inferring Provider-Customer and Sibling Relationships', first and second paragraphs; BGP routing tables of Figure 4).

**With respect to claim 10**, Gao further discloses the use of BGP to communicate updates and routing information (pg 733, right column, first partial paragraph) between the ASes.

**With respect to claim 12**, the Examiner places notice that the limitations "means for receiving ...", "means for identifying ...", and "means for responding ..." recited in claim

12 is being treated under 35 USC 112, sixth paragraph.

Gao discloses an autonomous system (AS1, AS2 of Figure 1; viewed as equivalent to the autonomous system described in the specification) with a router (right column, pg 734, section 'A. Internet Architecture', lines 12-14) that will receive export notices of routing information from other ASes (pg 737, left column, lines 6-21; viewed as equivalent to an advertisement communication). Once an AS has received routing information, the AS will examine the information to build an annotated AS graph (Figure 2; pg 736, right column, section 'A. Annotated AS Graph and Selective Export Rule'; viewed as equivalent to a directed graph). In addition, the AS will evaluate the routing information to find or map AS paths (pg 735, left column, section 'B. Routing Policies and BGP Routing Tables'; viewed as equivalent to identifying a connection between a pair of ASes). Gao further discloses using the annotated AS graph to build two-way connections and edges between ASes (Table II, 'Total edges' column; pg 742; right column, first partial paragraph).

**With respect to claim 13**, the Examiner places notice that the limitation "means for receiving ..." recited in claim 13 is being treated under 35 USC 112, sixth paragraph.

Gao further discloses that updates are received at the ASes to consider to including or continuing to propagate (pg 735, right column, last full paragraph).

**With respect to claim 14**, Gao further discloses a router as part of the AS (right column, pg 734, section 'A. Internet Architecture', lines 12-14; router is viewed as a network element). Gao further discloses routing tables used to store path and routing information (pg 739, left column, section 'A. Algorithms for Inferring Provider-Customer and Sibling Relationships', first and second paragraphs; BGP routing tables of Figure 4).

**With respect to claim 15**, Gao further discloses the use of BGP to communicate updates and routing information (pg 733, right column, first partial paragraph) between the ASes.



***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 6, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Klinker et al. (US 2006/0182034; hereafter Klinker).

**With respect to claims 6 and 16**, Gao fails to specifically disclose an administrator element that is operable to communicate information included within the directed graph to one or more additional network elements.

Klinker, in an invention of identification of multiple paths in a network, discloses a controller (605 of Figure 6; paragraph [0144]; viewed as equivalent to an administrator element) for exchanging path information among network elements (DALLS, SEATTLE, CHICAGO of Figure 1D).

Klinker teaches the benefit of more efficient network operations by using a controller to analyze the network performance (paragraph [0029]). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the controller of Klinker with the apparatus of Gao.

**With respect to claim 11**, Gao fails to specifically disclose an administrator element that is operable to communicate information included within the directed graph to one or more additional network elements.

Klinker, in an invention of identification of multiple paths in a network, discloses a controller (605 of Figure 6; paragraph [0144]; viewed as equivalent to an administrator

element) for exchanging path information among network elements (DALLS, SEATTLE, CHICAGO of Figure 1D).

Klinker teaches the benefit of more efficient network operations by using a controller to analyze the network performance (paragraph [0029]). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the controller method of Klinder with the method of Gao.

13. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Kumar et al. (US 7,085,279 hereafter Kumar).

**With respect to claim 17**, Gao discloses a method for an autonomous system (AS1, AS2 of Figure 1; viewed as equivalent to an apparatus) that will receive export notices of routing information from other ASes (pg 737, left column, lines 6-21; viewed as equivalent to an advertisement communication). Once an AS has received routing information, the AS will examine the information to build an annotated AS graph (Figure 2; pg 736, right column, section 'A. Annotated AS Graph and Selective Export Rule'; viewed as equivalent to a directed graph). In addition, the AS will evaluate the routing information to find or map AS paths (pg 735, left column, section 'B. Routing Policies and BGP Routing Tables'; viewed as equivalent to identifying a connection between a pair of ASes). Gao further discloses using the annotated AS graph to build two-way connections and edges between ASes (Table II, 'Total edges' column; pg 742; right column, first partial paragraph).

However, Gao fails to disclose a software on a computer readable medium to execute the method.

Kumar, in the same field of endeavor, discloses a computer readable medium storing a program to perform a connection setup over a packet network in conjunction with a

switching network. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method (column 7, lines 51-67). One skilled in the art would have clearly recognized that the method of Gao would have been implemented in a software module. The implemented software would perform the function with less expense and more flexibility. Therefore, it would have been obvious to have use the technique in Gao as-is and implement it as taught by Kumar in order to reduce cost and improve the adaptability and flexibility of the networking system.

**With respect to claim 18**, Gao further discloses that updates are received at the ASes to consider to including or continuing to propagate (pg 735, right column, last full paragraph).

**With respect to claim 19**, Gao further discloses a router as part of the AS (right column, pg 734, section 'A. Internet Architecture', lines 12-14; router is viewed as a network element). Gao further disclose routing tables used to store path and routing information (pg 739, left column, section 'A. Algorithms for Inferring Provider-Customer and Sibling Relationships', first and second paragraphs; BGP routing tables of Figure 4).

**With respect to claim 20**, Gao further disclose the use of BGP to communicate updates and routing information (pg 733, right column, first partial paragraph) between the ASes.

14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gao in view of Kumar and further in view of Klinker.

**With respect to claim 21**, Gao fails to specifically disclose an administrator element that is operable to communicate information included within the directed graph to one or more additional network elements.

Klinker, in an invention of identification of multiple paths in a network, discloses a controller (605 of Figure 6; paragraph [0144]; viewed as equivalent to an administrator element) for exchanging path information among network elements (DALLS, SEATTLE, CHICAGO of Figure 1D).

Klinker teaches the benefit of more efficient network operations by using a controller to analyze the network performance (paragraph [0029]). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the controller method of Klinder with the method of Gao.

### ***Response to Arguments***

15. Applicant's arguments, filed 9/25/2007 (pgs 8-9), with respect to the rejection(s) of claim(s) 1-21 under Borella have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gao.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. O'Connor whose telephone number is 571-270-1081. The examiner can normally be reached on 9:00AM-6:30PM, M-F, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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BTO  
Brian T. O'Connor  
December 12, 2007  
Patent Examiner

EDAN . ORGAD  
SUPERVISORY PATENT EXAMINER

*Edan Orgad* 12/17/07